EVALUATION AND DETERMINATION
Achieving the OR/WA Standards for Rangeland Health
and
Conformance with the Guidelines for Livestock Grazing Management

Field Office: Medford Determination Date(s): July 8, 2008
Grazing AllotmentName/Number: Deadwood/20106

Standard 1 Watershed Function – Uplands

1 ■ Meeting the Standard	5 □ Not Meeting the Standard, cause not determined
2 □ Not Meeting the Standard, but making significant progress towards	
3 □ Not Meeting the Standard, current livestock grazing management practices are not significant factors	6 ■ Conforms with Guidelines for Livestock Grazing Management.
4 □ Not Meeting the Standard, current livestock grazing management practices are significant factors	7 □ Does not conform with Guidelines for Livestock Grazing Management

Causal Factors for Achievement:
Recovery from past fire and associated management activities together with the limited influence of livestock at a landscape scale result in meeting the rangeland health standard for upland watershed functions in the Deadwood Allotment.

Rationale for Determination:
Livestock have relatively little influence on the upland ecosystems of the Deadwood Allotment since most of the allotment is dominated by conifer and other woody vegetation. Long-term recovery from the severe repeat fires and subsequent management (salvage logging and seeding with non-native grasses) of the early 20th century imply a general improvement at the landscape-scale. Repeat photos of upland areas with forage show minor improvement over time in meadows with perennial water. Drier sites such as the Moon Prairie show slight improvement of rills and areas of erosion derived from past grazing and other activities. There are few noxious weed locations in the uplands, and perennial grasses (native and non-native bulbous bluegrass) have increased relative to annual grasses over time, resulting in increased rooting depth and site productivity.

The limited spatial extent of livestock influenced areas contributes to meeting this standard for the Deadwood Allotment.

Standard 2 Watershed Function – Riparian/Wetland Areas

1 □ Meeting the Standard	5 □ Not Meeting the Standard, cause not determined
2 □ Not Meeting the Standard, but making significant progress towards	
3 □ Not Meeting the Standard, current livestock grazing management practices are not significant factors	6 □ Conforms with Guidelines for Livestock Grazing Management.
4 ■ Not Meeting the Standard, current livestock grazing management practices are significant factors	7 ■ Does not conform with Guidelines for Livestock Grazing Management

Causal Factors for Non-Achievement:
Several factors influence the functionality of riparian and wetland areas. Management practices including livestock grazing, timber harvest, road construction, and water withdrawals contribute to elevated fine sediment levels, lack of riparian shade, elevated water temperatures, loss of connectivity, aquatic habitat degradation, and excessively low summer flows prevent the attainment of the rangeland health standard for riparian/wetland areas in the Deadwood Allotment.

Rationale for Determination:
Stream channel riparian areas show considerable improvement in vegetation composition expressed as the establishment of vegetation on bare ground, replacement of grass by sedge, and replacement of herbaceous vegetation by riparian shrubs depending on the site. While change is slow relative to ungrazed areas, streamside riparian areas are generally improving throughout the Deadwood Allotment (Hosten and Whitridge 2007) in areas accessible to livestock. In particular, the increased vegetative propagation of aspen clones inside and outside of exclosures (generally in areas of heavy livestock use) indicates that the timing and intensity of grazing is allowing the recovery of many riparian plant communities (Hosten and Whitridge 2007).

Where grazing occurs in riparian areas, consumption of riparian vegetation allows higher levels of solar radiation to reach water surface in seeps/springs/streams resulting in increased water temperatures. Trampling in seeps/springs and along streams compromises the physical integrity of these environments by increasing compaction, width:depth ratio, and sedimentation. Livestock use, especially in wet areas, changes flow patterns in these naturally sensitive sites.

Stream surveys and PFC Assessments were conducted in riparian areas of this allotment between 1996 and 2006. The Hoxie Creek system has more stream segments that are non-functional (approximately one mile) or functioning-at-risk with a downward trend (approximately 4000 feet) than other streams in the allotment. As a perennial stream, Hoxie Creek receives heavier grazing pressure late in the season when water and

palatable vegetation are limited to perennial riparian areas (BLM 2003 and 2004). Stream survey data in this allotment identifies numerous locations where streambanks have been trampled and damaged by cattle. A survey conducted along Jenny Creek (T39S R4E Section 3) found altered streambanks along 36 percent of the 200 meters surveyed (Ashland Exclosure Monitoring 2005). This protocol describes the linear length of streambank alteration that can be directly attributed to large herbivores. Grazing impacts from moderate to severe were observed in three of the four springs surveyed for aquatic mollusks and reported by Frest and Johannes (2005).

Physical Habitat Surveys conducted by ODFW (2002) on Grizzly Creek, just downstream of the Howard Prairie Reservoir spillway found actively eroding stream banks (34 percent of the 3370 feet surveyed) and high levels of fine sediment (39 percent) in the stream substrate. The same report listed grazing and timber production as the dominant land uses along this stretch of stream. Livestock related soil disturbance is documented on Hoxie Creek, Grizzly Creek, and Keno Springs (BLM 2003-2005). Additionally, cows remain on this allotment past the removal date, increasing the pressure on perennial seeps, springs, and streams.

Streams in the Deadwood Allotment drain into Howard Prairie Reservoir, Jenny Creek, and Dead Indian Creek. Howard Prairie Reservoir is actually in the Jenny Creek subbasin; however, water from the Howard Prairie Reservoir is transported to Keene Creek Reservoir and then into the Bear Creek Watershed (a tributary of the Rogue River) through tunnels and a pipeline down to Green Springs Power Plant. Jenny Creek, below Howard Prairie Reservoir flows into the Irongate Reservoir in northern California in the Klamath basin. Dead Indian is a tributary to South Fork Little Butte Creek, a tributary to Little Butte Creek, a tributary to the Rogue River.

Stubble heights less then four inches were observed in the Deadwood Allotment primarily in the Grizzly Creek, Moon Prairie, and Hoxie Creek areas. Riparian grazing recommendations suggest that four to six inches of forage stubble height should remain on streamside areas at the end of the growing season, after fall frost, to limit potential impacts to the herbaceous plant community, the woody plant community, and streambank stability (Clary 1999).

Guidelines in Non-Conformance:

- **Livestock Grazing Management**

1. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to: (i) protect or restore water quality.
2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.

- **Facilitating the Management of Livestock Grazing**

1. The use of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements (where authorized) are used where appropriate to: (a) promote livestock distribution (b) encourage a uniform level of proper grazing use throughout the grazing unit (c) avoid unwanted or damaging concentrations of livestock on streambanks, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitats and plant communities (d) protect water quality

2. Roads and trails used to facilitate livestock grazing are constructed and maintained in a manner that minimizes the effects on landscape hydrology; concentration of overland flow, erosion and sediment transport are prevented; and subsurface flows are retained.

- **Accelerating Rangeland Recovery**

3. Structural and vegetative treatments and animal introductions in riparian and wetland areas must be compatible with the capability of the site, including the system's hydrologic regime, and contribute to the maintenance or restoration of properly functioning condition.

Standard 3 Ecological Processes

1 □ Meeting the Standard	5 □ Not Meeting the Standard, cause not determined
2 □ Not Meeting the Standard, but making significant progress towards	
3 □ Not Meeting the Standard, current livestock grazing management practices are not significant factors	6 □ Conforms with Guidelines for Livestock Grazing Management
4 ■ Not Meeting the Standard, current livestock grazing management practices are significant factors	7 ■ Does not conform with Guidelines for Livestock Grazing Management

Causal Factors for Non-Achievement:
Repeat fires of the early 20th century, reservoirs, salvage logging, the difficult reestablishment of conifer canopy, and influence of livestock on meadow successional and hydrological processes prevent the attainment of the rangeland health standard for ecological processes.

Rationale for Determination:
The allotment is dominated by forest-related ecological processes in the uplands, which cover most of the analysis area. Timber harvest and elongated fire return interval have resulted in dense vegetation with little available forage within many forest ecological

sites. Livestock are generally restricted to dry meadows in the vicinity of Moon Prairie, and meadows with perennial water in the vicinity of Hoxie Creek.

Moon Prairie and its environs were severely impacted by past repeat fires and subsequent management, which likely included salvage logging, tilling, and seeding with non-native grasses. The reestablishment of trees has been difficult due to the presence of gophers and the effects of "frost pocketing." Repeat photos show the recent planting and reestablishment of conifer stands, including within historic prairies at some locations. At one site, repeat photos show the conversion from grass domination to woody half-shrubs. The dominant shrub is rabbitbrush, an indicator of disturbance. The shrub likely increased in abundance because of heavy livestock use evident in early photos in combination with a lack of fire. Another site in the vicinity of Moon Prairie shows the deterioration of rills since the early 1970s, likely due to livestock use evident in the photos.

The meadows of the Hoxie creek area also show a strong influence by livestock. Repeat photos in livestock influenced areas show slight improvement in riparian vegetation in comparison to livestock exclosures.

The loss of the grass component in the vicinity of Moon Prairie, and slow riparian recovery of livestock influenced areas in grazed wet meadows in comparison to exclosures indicate altered successional processes across dry and wet meadow ecological sites. The lack of improvement in hydrological processes indicated by cut-banks and deteriorating rills prevents meeting the standard for "ecological processes."

Guidelines in Non-Conformance:

- **Livestock Grazing Management**

1. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to: (a) provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability in upland areas.
2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.
7. Range improvement practices should be prioritized to promote rehabilitation and resolve grazing concerns on transitory grazing land.

- **Facilitating the Management of Livestock Grazing**

1. The use of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements (where authorized) are used where appropriate to: (a) provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability in upland areas (b) encourage a uniform level of proper grazing use throughout the grazing unit (c) avoid

unwanted or damaging concentrations of livestock on streambanks, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitats and plant communities.

Standard 4 Water Quality

1□ Meeting the Standard	5 □ Not Meeting the Standard, cause not determined
2 □ Not Meeting the Standard, but making significant progress towards	
3 □ Not Meeting the Standard, current livestock grazing management practices are not significant factors	6 □ Conforms with Guidelines for Livestock Grazing Management.
4 ■ Not Meeting the Standard, current livestock grazing management practices are significant factors	7 ■ Does not conform with Guidelines for Livestock Grazing Management

Causal Factors for Non-Achievement:
Several factors influence water quality in this allotment. Management practices including livestock grazing, timber harvest, road construction, and water withdrawals contribute to elevated fine sediment levels, lack of riparian shade, elevated water temperatures, loss of connectivity, aquatic habitat degradation, and excessively low summer flows.

Rationale for Determination:
This allotment is not meeting Standard 4 (Water Quality) because livestock are negatively affecting stream temperature, establishment of riparian vegetation, stabilization of streambanks, sediment regimes and water quality.

There are three streams (Jenny, Grizzly, and Hoxie Creeks) in the Deadwood Allotment that are on the Oregon DEQ's 2004/2006 Clean Water Act Section 303(d) list for failing to meet summer temperature standards and two streams (Dead Indian and Conde Creeks) are on the list for failing to meet year around temperature standards (ODEQ 2006).

Riparian photo retakes of seeps and springs suggest that little change in riparian vegetation has occurred over recent decades, likely because small seeps and springs result in a concentration of livestock seeking water (Hosten 2007b; Hosten and Whitridge 2007). Overall reduction in stocking rates and timing of livestock have not reduced disturbance below a threshold allowing vegetation recovery observed in livestock excluded areas. Lack of overhanging and bank vegetation likely influences water quality by facilitating higher temperatures and suspended sediments.

Stream surveys and Properly Functioning Condition assessments (PFC) conducted between 1996 and 2006 identified and photographed numerous locations where

streambanks had been trampled and riparian areas had been damaged by cattle particularly in Grizzly, Hoxie and Jenny Creeks.

The Hoxie Creek stream system has the highest amount of non-functional (approximately one mile) or functional-at-risk with a downward trend (approximately 4,000 feet) stream segments of any of the streams within the allotment. As a perennial stream, Hoxie Creek receives heavier grazing pressure late in the season when water and palatable vegetation are limited to perennial riparian areas (BLM 2003 and 2004).

Physical Habitat Surveys conducted by ODFW (2002) on Grizzly Creek, just downstream of the Howard Prairie Reservoir spillway found actively eroding stream banks (34 percent of the 3370 feet surveyed) and high levels of fine sediment (39 percent) in the stream substrate. The same report listed grazing and timber production as the dominant land uses along this stretch of stream. Additionally, cows remain on this allotment past the removal date, increasing the pressure on perennial seeps, springs, and streams. A survey conducted along Jenny Creek (T.39S. R.4E. Section 3) found altered streambanks along 36 percent of the 200 meters surveyed (Ashland Exclosure Monitoring 2005). This protocol describes the linear length of streambank alteration that can be directly attributed to large herbivores.

Stubble heights less then four inches were observed in the Deadwood Allotment primarily in the Grizzly Creek, Moon Prairie, and Hoxie Creek areas. Riparian grazing recommendations suggest that four to six inches of forage stubble height should remain on streamside areas at the end of the growing season, after fall frost, to limit potential impacts to the herbaceous plant community, the woody plant community, and streambank stability (Clary 1999).

Guidelines in Non-Conformance:

- **Livestock Grazing Management**

1. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to: (b) provide adequate cover and plant community structure to promote streambank stability, debris and sediment capture, and floodwater energy dissipation in riparian areas (i) protect or restore water quality.
2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.

- **Facilitating the Management of Livestock Grazing**

1. The use of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements (where authorized) are used where appropriate to: (a) promote livestock distribution; (b) encourage a uniform level of proper grazing use throughout the grazing unit; (c) avoid unwanted or damaging

concentrations of livestock on streambanks, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitats and plant communities; and (d) protect water quality.
2. Roads and trails used to facilitate livestock grazing are constructed and maintained in a manner that minimizes the effects on landscape hydrology; concentration of overland flow, erosion and sediment transport are prevented; and subsurface flows are retained.

- **Accelerating Rangeland Recovery**

3. Structural and vegetative treatments and animal introductions in riparian and wetland areas must be compatible with the capability of the site, including the system's hydrologic regime, and contribute to the maintenance or restoration of properly functioning condition.

Standard 5 Native, T&E, and Locally Important Species □ Standard doesn't apply

1 □ Meeting the Standard	5 □ Not Meeting the Standard, cause not determined
2 □ Not Meeting the Standard, but making significant progress towards	
3 □ Not Meeting the Standard, current livestock grazing management practices are not significant factors	6 □ Conforms with Guidelines for Livestock Grazing Management.
4 ■ Not Meeting the Standard, current livestock grazing management practices are significant factors	7 ■ Does not conform with Guidelines for Livestock Grazing Management

Causal Factors for Non-Achievement:
The limited distribution of noxious weeds and absence of threatened and endangered (T&E) vascular plant species of concern imply that livestock do not influence vegetation as it pertains to the "Native, T&E, and Locally Important Species" rangeland health standard of the Deadwood Allotment. The Bureau Special Status vascular and non-vascular plant species are not palatable to livestock and both occur in areas where there is no-slight (0-5%) use by livestock.

Rationale for Determination:
The Deadwood Allotment shows a limited distribution of noxious weeds and absence of native species considered important under this component of the rangeland health standards. Livestock are consequently not considered as a stressor for this component of the rangeland health standards of the Deadwood Allotment.

Effects to T & E Species, Special Status Terrestrial Wildlife Species and their habitat include: Several BLM Special Status terrestrial wildlife species are negatively affected by the grazing operations in the Deadwood allotment. The moderate to severe average utilization in the riparian areas and "wet meadows" produces the greatest negative impacts to native wildlife species. The foothill yellow-legged frog and northwestern

pond turtle (BLM sensitive species) are dependent on riparian and aquatic habitat and are negatively affected when these habitats are degraded by cattle. Habitat degradation occurs through streambank trampling and wading in shallow ponds, springs, and streams.

A complex of wet meadows in the allotment is occupied by the Mardon skipper, a federal candidate species. These meadows are overutilized which reduces plants used by this species for nectaring and ovipositing. The impact of grazing to these habitat components likely reduces reproduction for this species. The primary threat listed for each of these sites is grazing (Xerces 2007, Hosten 2007c).

Although not associated with riparian or aquatic habitat, the Siskiyou short-horned grasshopper (BLM sensitive species) may occur within the allotment. It appears to be dependent on elderberry for the egg-laying phase of its life cycle. Cattle impact elderberry through rubbing and/or browsing and this has been noted at the known site. Siskiyou short-horned grasshoppers are actively feeding and reproducing from July through September and are likely to be impacted by reduction of elderberry vegetation and by grass and forb resources which they depend on for food and protective cover.

Effects to T & E Species, Special Status Aquatic Species and their habitat include:
Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*), a "threatened" species under the Endangered Species Act (ESA), are restricted to habitat below Irongate Reservoir located approximately 18 miles downstream of the Deadwood Allotment, below a reservoir that acts as sediment trap in all but the worst flood conditions. Any sediment generated by stream bank degradation in upper Dead Indian Creek, while noteworthy at the site scale, is not of the magnitude to influence coho critical habitat (CCH), greater than four miles downstream. The first fall rains would mobilize this sediment and move it through the system at a time when turbidities are naturally high so it would not be detectable above the background.

The Jenny Creek Watershed supports populations of native Jenny Creek redband trout (*Oncorhynchus mykiss)* considered "sensitive" on the Final Interagency Special Status/Sensitive Species List (January 2008). Emigrant Creek pebblesnail (*Fluminicola* sp. 17?), Jenny Creek suckers (*Catostomus rimiculus*) and speckled dace (*Rhinycthyes osculus*) are other native species known to occur in the system. South Fork Little Butte Subwatershed supports populations of coho salmon.

Grazing negatively effects aquatic mollusks and their habitat by disturbing the soil, removing vegetation that provides shade and habitat for the mollusks, and by trampling the mollusks themselves. The Medford District and the monument in particular have been thoroughly surveyed for the presence of aquatic mollusks. Distribution of both the Keene Creek and Emigrant Creek pebblesnails are limited with one site each in this allotment; one site had moderate grazing impacts and the other severe (Frest and Johannes 2005). These species are very local, southwest endemics (Frest and Johannes 2005); however, only the Keene Creek pebblesnail is on the Special Status Species list (2008). Barr and Frest (In prep.) showed there were no statistically significant associations of aquatic mollusk richness with livestock utilization throughout the CSNM.

A study examining patterns of aquatic macroinvertebrates in streamside riparian influence found that the combined influence of road density, logging, and livestock reduced aquatic macroinvertebrate richness (Barr et al. In review). Studies in seeps and springs found that high diversity and species indicative of clean water were compatible with low to moderate ungulate use (Dinger et al. 2007). Higher use resulted in a loss of intolerant species. A strong geographic influence suggests that a subset of springs throughout the monument need to be conserved to maintain beta diversity. Very little information exists on the abundance or distribution of the Special Status species caddisflies.

Guidelines in Non-Conformance:

- **Livestock Grazing Management**

1. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to: (e) help prevent the increase and spread of noxious weeds; (h) promote soil and site conditions that provide the opportunity for the establishment of desirable plants; (i) protect or restore water quality; and (j) provide for the life cycle requirements, and maintain or restore the habitat elements of native (including T&E, special status, and locally important species) and desired plants and animals.
2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.
6. Provide periodic rest from grazing for rangeland vegetation during critical growth periods to promote plant vigor, reproduction and productivity.

- **Facilitating the Management of Livestock Grazing**

1. The use of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements (where authorized) are used where appropriate to: (a) promote livestock distribution; (b) encourage a uniform level of proper grazing throughout the unit; (c) avoid unwanted or damaging concentrations of livestock on streambanks, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitats and plant communities; and (d) protect water quality.

- **Accelerating Rangeland Recovery**

3. Structural and vegetative treatments and animal introductions in riparian and wetland areas must be compatible with the capability of the site, including the system's hydrologic regime, and contribute to the maintenance or restoration of properly functioning condition.

/s/ John Gerritsma 7/8/08

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John Gerritsma Date
Field Manager
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